

BOOK REVIEW

Enough: staying human in an engineered age

B McKibben, Henry Holt Company, New York, 2003, hardback, pp 288. ISBN 0805070966

Bill McKibben's book, *Enough*, is about cloning, genetic enhancement, and nanotechnology. His thesis is that these things are bad—nay, they are downright evil. In vivid and readable prose, McKibben explains what will soon be possible with these technologies and provides a dystopian portrait of the future. His alarmist tone is effective. Despite having read several similar works and remaining unmoved, McKibben's images struck home with me. I began to feel, in my gut, anxiety about the genetically engineered future. McKibben is no stranger to raising the dangers of new technology. His *The End of Nature* is widely acclaimed to have alerted an unsuspecting public about the danger of global warming. Alarmism was appropriate for *The End of Nature*, since little was written on global warming prior to 1989. But despite McKibben's effective writing, his alarmism seems out of place for his current topic, since the potential harms of cloning and genetic engineering have been discussed in the academic and popular press for some time. Remember, it has been 34 years since the appearance of Paul Ramsey's *Fabricated Man*, and 72 years since Huxley's *Brave New World*.

McKibben's most prominent argument against human genetic engineering is that it will cause psychological harm to the people produced from the use of the technology. McKibben claims that people with the knowledge that they resulted from engineered embryos will undergo a crisis in personal responsibility. So, he argues, engineered people will not know whether to take credit for their achievements, (they were designed for great things, after all). Likewise, engineered people will tend to feel guilty for their failures (since their genes provided the aptitude needed to succeed, their failures must result from a culpable lack of will). McKibben makes these points with a series of hypothetical examples. Here he is imagining the psychological state of a genetically engineered daughter: "And what can she take pride in? Her good grades? She may have worked hard, but she'll always know she was specced for good grades. Her kindness to others? Well, yes, it's good to be kind—but perhaps it's not much of an accomplishment once the various genes with some link to sociability have been catalogued and manipulated" (pp 59–60). The problem with this argument is that the potential psychological harm seems to arise because of genetic determinism, rather than because such individuals were intentionally designed. But, if knowledge about genetic determinism causes psychological harm, one would expect it to have been a problem even in the

pre-engineered age. Thus, Sally could worry that it is her genes that make her a virtuoso pianist (she *herself* deserves no praise), even if her parents did not purchase a particular set of genes for her. The fact that we do not now suffer any great psychological harm from the knowledge that we are genetically determined suggests that "engineered" people who are genetically determined will not suffer any harm either. At least, McKibben does not provide any reasons for thinking so.

McKibben misses the opportunity to explain why the intentional engineering of offspring has additional harms, harms not associated with genetic determinism per se. At least, he does not do this in any systematic way, though he has certainly opened the door to an analysis. It is obvious that the intentional design of offspring has ethical implications for those doing the designing. The ethically relevant distinction here is between being causally responsible for a state of the world, and merely lamenting (or celebrating) a state of the world that one has had no hand in bringing about. So, parents who have a child engineered are morally responsible for the health of the offspring in a way in which parents who use the more usual way of determining the genotype of offspring are not responsible. But perhaps genetic engineering also has implications for the moral psychology of the engineered offspring. Perhaps any guilt felt by parents will seep over to affect the children. Perhaps (as McKibben does suggest) the expectations of the parents will put too much pressure on the children. Perhaps engineered children will not feel responsible for their actions because they were programmed (although I have already suggested that this is not materially different from worries about genetic determinism resulting from natural reproduction). Perhaps there are more direct sources of harm in simply knowing that one was designed. McKibben's writing leaves us with the *feeling* that this is the case, but it is difficult to translate the feeling into an articulate and appropriately weighty set of worries.

McKibben's book also covers a number of familiar issues. He predicts that class divisions will widen as the rich purchase genetic enhancements for their children—class divisions will be written into our biology. He is concerned about an arms race: since the technology will improve every several years, one can expect that younger people will be smarter, faster, and better than those just three or four years older. How will our employment system handle this: if the newer model is always better, why keep older models around? These concerns are familiar, but they are also particularly vivid in McKibben's telling. McKibben unifies these worries under the theme of meaning. Past technological advances have stripped away the "contexts" (for example, church, village, family, nature) that have given meaning to the lives of previous generations of humans. Currently, our self-image allows us to find meaning only in autonomy and individuality.

However, according to McKibben, because of biotechnology "*we stand on the edge of disappearing even as individuals*" (p 46, italics in original). McKibben's point is that we will no longer be able to view ourselves as making free choices which warrant praise or blame—we will instead see ourselves as automata. This is a potent concern, but it is also one which we have been struggling with since the recognition that physical determinism seems to be incompatible with free will. I am not sure that reflection on genetic engineering does anything more than put a new face on an old monster.

Understandably, McKibben's discussion is at its weakest when discussing nanotechnology and its current state of development. Likewise, his description of the harms of nanotechnology is somewhat inchoate. (Michael Crichton's novel *Prey* might be a better primer on these topics.) However, nanotechnology may be too new an idea to discuss with much specificity. At the very least, McKibben lets us know who is making news in the area and provides citations for further research. McKibben provides a knowledgeable and nuanced treatment of preimplantation diagnosis (pp 132–7). He advocates screening for genetic diseases, and though he acknowledges that there is only a murky line between screening for disease and screening for merely suboptimal mental and physical traits, he suggests that we can implement this technology without falling prey to a brave new world of genetic enhancement.

A less familiar theme in McKibben's work is his discussion of our resources for resisting technological change. He offers three case studies: the present-day Amish, China's self-imposed moratorium on sea trade in 1424, and Japan's outlawing of weapons that used gunpowder in the early 1600s. In each case, a newer technology was successfully resisted because of the ruling group's concern about how the technology would affect the fabric of society. These examples provide much fuel for reflection (as do other examples drawn from environmental studies). In particular, one wonders how long new technologies can successfully be suppressed. One also wonders about the forces that propel societies to implement new technologies even when they tend to erode the cultural status quo. For example, why do societies seem to more strongly resist ideological reforms (such as those prompted by feminism or gay rights) than changes from technological advances, since both have the potential to erode the cultural status quo? Is it merely the profit motive that makes technological change so difficult to resist?

McKibben's book does not break new philosophical ground. Nonetheless, it is chock full of news items, rich hypothetical scenarios, interesting analogies, and provocative quotes from experts and quacks alike. It may be the best place that I know of to begin to philosophise about biotechnology.

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